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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/560,767 | 12/13/2005 | Eugene S. Rubin | 20030073 | 5153 |
| 22500 | 7590 | 03/14/2011 | EXAMINER | |
| BAE SYSTEMS PO BOX 868 NASHUA, NH 03061-0868 | | | | BONZELL, PHILIP J |
| ART UNIT | | PAPER NUMBER | | |
| 3644 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/560,767 | RUBIN, EUGENE S. |
| | Examiner | Art Unit |
| | PHILIP J. BONZELL | 3644 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 05 November 2010.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-3,5-9,14,16-18 and 20 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-3, 5-9, 14, 16-18, and 20 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/5/2010 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 7-9, 14, 16-18, and 20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555), Czarnecki (US Patent #6267039) and Loucks (US Patent #5269132).

a. For Claims 1, 3, 7-9, 14, 17, 18, and 20, figure 6 of Bull '295 discloses an aircraft (18) that has a deployed multiple decoys (22) that are towed by fiber optic cables (20) of various lengths having termination points a distance from a terminating point of other fiber optic cables during at least one aircraft flight time

period. Figure 13 discloses powering the decoy with a laser source (40) within the aircraft and an amplifier (35) that increases the outgoing signal so that it is stronger than that of the aircraft. While Bull '295 discloses using a warning system (26) to know when to power the decoy system it is silent about the actual deployment and retraction of the towed decoy, figure 4 of Carlson '555 teaches the ability to deploy and retract a towed decoy at anytime based on the warning receiver (100). Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295 with the deployment and retraction abilities of Carlson '555 in order to allow the aircraft to have the decoy out only when necessary to increase vehicle performance when it is not needed.

b. While Bull '295 teaches the use infrared to send information and power in figure 13, it converts the infrared signal into radio frequencies of varying power levels or bands at the same time to attract an RF missile. Both Bull '295 and Carlson '555 are silent about the decoy being infrared, figure 4 of Czarnecki '039 teaches directly radiating infrared energy into the atmosphere, infrared as a heat source decoy which allows for an incoming missile to lock on to a fake signature which is of a magnitude greater than the infrared signature of the aircraft and hit a sacrificial portion of the aircraft so that it can remain flight worthy even after a missile hit. Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295 and Carlson '555 with the infrared signature of Czarnecki '039 in order to deceive incoming IR missiles.

c. Bull '295, Carlson '555, and Czarnecki '039 are silent about masking the infrared signature engine. However, the abstract of Loucks '132 teaches, "the apparatus consists of a plurality of overlapping hollow panels each having a truncated cone shape supplied with a liquid coolant such that the coolant absorbs heat from the surfaces of the panels and converts the liquid to a vapor. The vapor created by this heat absorption is injected from an end opening of a panel between the panels and the exhaust gases of the jet engine to form a boundary layer". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, and Czarnecki '039 with the engine mask of Loucks '132 in order to reduce the infrared signature of the engine so that incoming missiles are less attracted to it.

d. For Claim 2, while Bull '295 is silent about the height that the aircraft is when the decoy is deployed, the Examiner takes Official Notice that it is well known to deploy a decoy at any height when it is needed including at 10,000 ft. Therefore it would have been obvious for a person of ordinary skill in the art at the time of the invention to deploy the decoy at approximately 10,000 ft.

e. For Claim 16, while Loucks '132 discloses using water, it is silent about using multispectral water; however it would have been obvious to someone of ordinary skill in the art to use multispectral water or a variety of oil additives as is well known in the art to reduce the IR signature of an aircraft.

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555), Czarnecki (US Patent #6267039), and Loucks (US Patent #5269132) as applied to claim 1 above, and further in view of Sweeny (US Patent #6055909).

a. For Claim 5, Bull '295, Carlson '555, Czarnecki '039, and Loucks '132 are silent about the use of rapid modulation to increase the intensity of the decoy, however, column 8, lines 36-42 of Sweeny '909 teaches, "Varying the intensity of the IR radiation intensity emitted by the decoy can be used to deceive the seekers of some missile employing intensity discriminants other than just the centroid scheme described above. In one preferred IR radiation intensity modulation pattern depicted in FIG. 4, the radiant intensity is varied from somewhat higher to somewhat lower than the aircraft engine's IR signature". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, Czarnecki '039, and Loucks '132 with the modulation of Sweeny '909 in order properly avoid a missile strike.

b. For Claim 6, Bull '295, Carlson '555, Czarnecki '039, and Loucks '132 are silent about increasing the exhaust obscurant. Column 1, lines 22-24 of Loucks '132 teaches "injecting various coolants into the engine combustion chambers", and Claim 1 teaches, "controlling the supply of liquid coolant". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, Czarnecki '039, and Loucks '132 with

the controlling of exhaust obscurant as taught in Loucks '132 in order to mask the infrared signature of the engines in order to reduce the risk of missiles being attracted to the aircraft.

Response to Arguments

4. Applicant's arguments filed 8/6/2010 have been fully considered but they are not persuasive.
 - a. With respect to the first argument on pages 11-12 that Czarnecki '039 is not a proper combination as it teaches providing infrared directly out from the aircraft to sacrifice non-essential portions of the aircraft to incoming missiles, the Examiner respectfully disagrees. Czarnecki '039 clearly teaches that it is well known to use a direct infrared signal out into space that is strong enough to attract an incoming missile from the infrared signature of the aircraft. This is the concept that is being used to modify Bull '295 which would could then be used as a decoy infrared seeking missiles instead of RF seeking missiles. In addition it would simplify the decoy as the need to trasnform the infrared to Rf signal would not be needed as the initial infrared signature could be maintained and amplified to create an infrared decoy target for the incoming missile.
 - b. With respect to the second argument on pages 12-13 that Loucks '132 is not a proper combination as just because using an engine obscurant is known that it is not obvious to combine it with a decoy, the Examiner respectfully disagrees. All of the prior art used has the main goal to protect an aircraft from

missiles, whether it is with a decoy or using an engine obscurant. The Examiner holds that it would have been obvious to someone of ordinary skill in the art at the time of the invention to use an engine obscurant on an aircraft with a decoy as this would only further help keep an aircraft safe from a missile as the engines infrared signature would be decreased which would increase the difference in infrared signatures between the aircraft and the decoy, thus making the decoy more of an attractive target to the incoming missile

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHILIP J. BONZELL whose telephone number is (571)270-3663. The examiner can normally be reached on M-Th 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Collins can be reached on 571-272-6886. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PHILIP J BONZELL/
Examiner, Art Unit 3644

pjb

/Tien Dinh/

Primary Examiner, Art Unit 3644